Supporting Information

Integrating Mussel Chemistry into a Bio-Based Polymer to Create Degradable Adhesives

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Figure S1. Analysis of catechol-PLA and unmodified PLA degradation.

Table S1. Synthesis and characterization data for poly[(3,4-dihydroxymandelic acid)-*co*-(lactic acid)] copolymers used to investigate the effect of catechol content upon adhesion in Figure 2a.

Table S2. Synthesis and characterization data for poly[(3,4-dihydroxymandelic acid)-*co*-(lactic acid)] copolymers used to investigate the effect of molecular weight upon adhesion in Figure 2b.

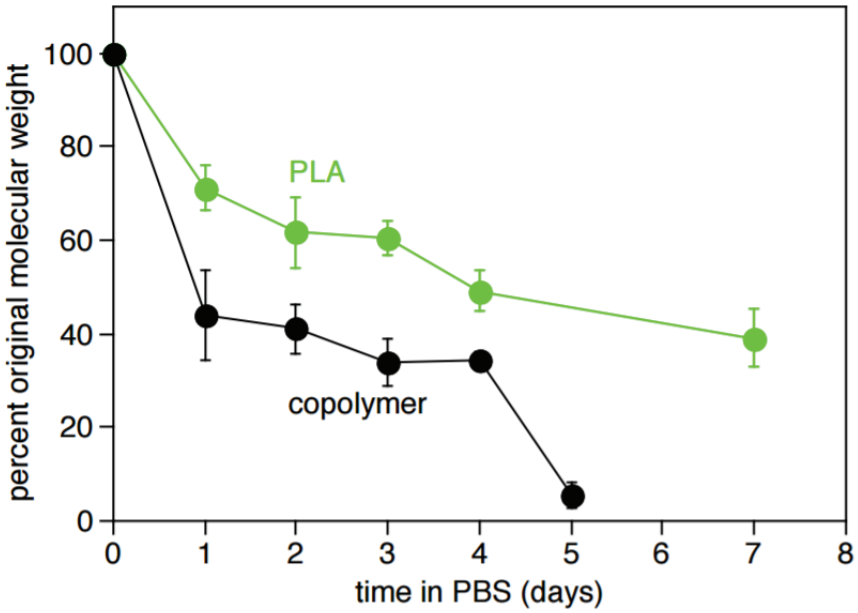

Figure S1. Analysis of catechol-PLA and unmodified PLA degradation. Data show the change in molecular weight over time of cylindrical samples submerged in buffer. Molecular weights were determined by gel permeation chromatography. At least three samples were averaged for each point.

Table S1: Synthesis and characterization data for poly[(3,4-dihydroxymandelic acid)-*co*-(lactic acid)]. These polymers were used for determining the effect of catechol content upon adhesion in Figure 2a.

feed o(3,4-mdMA) (mol%)	feed PLA (mol%)	PLA M_w (g mol^{-1})	final catechol content (%)[b]	final lactic acid content (%)[b]	M_n (g mol^{-1})	M_w (g mol^{-1})	PDI	T_g (˚C)
0	*a*	*a*	0	100	14,100	20,600	1.5	46
9	91	105,100	8	92	22,600	34,400	1.7	37, 56
20	80	105,100	15	85	25,200	33,000	1.3	33, 62
30	70	44,200	20	80	10,300	12,300	1.2	96
30	70	105,100	23	77	16,600	25,500	1.5	35, 87
40	60	105,100	30	70	23,500	34,400	1.5	30, 81
60	40	105,100	49	51	15,900	27,200	1.7	33, 85

[a] This 100% poly(lactic acid) was prepared by a different method, using ring opening polymerization.

[b] The final polymer composition was determined by ^{1}H NMR spectroscopy.

Table S2: Synthesis and characterization data for poly[(3,4-dihydroxymandelic acid)-*co*-(lactic acid)]. These copolymers were used to investigate the effect of molecular weight upon adhesion in Figure 2b.

feed o(3,4-mdMA) (mol%)	feed PLA (mol%)	PLA M_w (g mol^{-1})	final catechol content (%)[a]	final lactic acid content (%)[a]	M_n (g mol^{-1})	M_w (g mol^{-1})	PDI	T_g (˚C)
9	91	105,100	8	92	1,500	2,700	1.8	48
10	90	105,100	8	92	3,000	8,500	2.9	42
9	91	105,100	7	93	3,000	11,800	3.9	43, 65
11	89	62,900	7	93	5,600	9,400	1.7	72
9	91	105,100	8	92	23,500	34,400	1.8	43, 71
9	91	105,100	6	94	31,100	39,500	1.8	37, 56
9	91	105,100	6	94	57,200	72,200	1.3	78

[a] The final polymer composition was determined by ^{1}H NMR spectroscopy.